PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference FOR FURTHER ACTION See Form PCT/IPEA/416						
P802771/WO/1						
International application No.		International filing dat		Priority date (day/month/year)		
PCT/EP2004/006338		11.06.2004		14.06.2003		
International Patent Classification (IPC) or national classification and IPC						
Applicant DAIMLERCHRYSLER AG						
•	-	minary examination rep ne applicant according to	•	nternational Preliminary Examining Authority		
2. This REPOR	2. This REPORT consists of a total of sheets, including this cover sheet.					
3. This report is	also accompanied by A	NNEXES, comprising:				
a. 🛛 (sent to the applicant and	to the International But	reau) a total of	sheets, as follows:		
×	sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).					
	sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.					
b <i>(</i>						
	, containing a sequence listing and/or tables					
related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).						
_	ontains indications relat	ing to the following item	ns:			
Вох	No. I Basis of th	e report				
Вох	No. II Priority					
Вох	No. III Non-establ	ishment of opinion with	regard to novelty, inventi	ive step and industrial applicability		
Вох	No. IV Lack of un	ity of invention				
Box	110. 1	statement under Article 3 ad explanations supportin	• •	ty, inventive step or industrial applicability;		
Box	No. VI Certain do	cuments cited				
Вох	No. VII Certain del	ects in the international	application			
Вох	No. VIII Certain ob	servations on the interna	tional application			
Date of submission of the demand Da			Date of completion of thi	s report		
Name and mailing address of the IPEA/EP			Authorized officer			
Facsimile No.			Telephone No.			

Translation

International application No.
PCT/EP2004/006338

Box	No. I		Basis of the report		-
1.			o the language, this report is based on the internation ler this item.	nal application in the language in	which it was filed, unless otherwise
			port is based on translations from the original languages the language of a translation furnished for the purpo		,
] i	nternational search (Rule 12.3 and 23.1(b))		
		_ p	ublication of the international application (Rule 12.4)		
	L	i	nternational preliminary examination (Rule 55.2 and/	or 55.3)	
2.		ing Off	to the elements of the international application, this fice in response to an invitation under Article 14 are		
		the inte	ernational application as originally filed/furnished		
	\boxtimes	the des	cription:		
	1	pages	3-10		as originally filed/furnished 11.12.2004 with letter
	1	pages*	1,2	received by this Authority on	
	1	pages*		received by this Authority on	
	\boxtimes	the clai	ims:		
	1	nos.			as originally filed/furnished
	ı	nos.*		as amended (togethe	r with any statement) under Article 19
		nos.*	1-7	received by this Authority on	11.12.2004 with letter of 25.11.2004
		nos.*		received by this Authority on	
	\boxtimes	the dra	wings:		
		sheets	1/4-4/4		as originally filed/furnished
		sheets'	*	received by this Authority on	
		sheets'	•	received by this Authority on	
1		a sequ	ence listing and/or any related table(s) – see Supplem	ental Box Relating to Sequence L	isting.
3.		The ar	nendments have resulted in the cancellation of:		
] .		\neg	the description, pages		
	i		the claims, nos.	Mark.	
	Ì	\equiv			
	ľ		the sequence listing (specify):		, , , , , , , , , , , , , , , , , , ,
	ľ		any table(s) related to sequence listing (specify):		
4.			eport has been established as if (some of) the amend	lments annexed to this report and	l listed below had not been made, since
	Ш.	they h	ave been considered to go beyond the disclosure as fi	led, as indicated in the Suppleme	ntal Box (Rule 70.2(c)).
	ļ		the description, pages		
			the claims, nos.		
			the drawings, sheets/figs		
			the sequence listing (specify):		
		∐ .	any table(s) related to sequence listing (specify):		
*	If iten	n 4 am	olies, some or all of those sheets may be marked "sup	erseded."	

International application No.
PCT/EP2004/006338

Box		oned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; ons and explanations supporting such statement	
1.	Statement		
	Novelty (N)	Claims 1-7	YES
		Claims	NO
	Inventive step (IS	(S) Claims 1-7	YES
			NO
	Industrial applica	cability (IA) Claims 1-7	YES
		Claims	NO
2.	Citations and explan	nations (Pule 70.7)	
2.	-	is report makes reference to the following	
		cument:	
	doc	Juneire.	
	n1 •	: DE 102 23 730 A (DENSO CORP) 6 February 2003	
	<i>D</i> 1.	(2003-02-06)	
		(2003 02 00)	
	2 D1	discloses (the references in parentheses are to	
		is document) a:	
	rac	dial plunger pump (10) for providing fuel at	
	hig	gh pressure in common-rail fuel injection	
	sys	stems of internal combustion engines with a	
	dri	ive shaft (14) mounted in a pump housing (11),	
	sai	id drive shaft having an eccentric shaft section	
	(17	7) on which a roller (18) is mounted, and with a	
	plu	urality of pistons (70) arranged in a cylinder	
	(12	2a, 13a) radially in relation to the drive shaft	
	(14	4). A piston sole plate (71) is arranged on the	
	enc	ds of the pistons facing the roller (18), said	
	pis	ston sole plate contacting the peripheral	
	sui	rface of the roller (18), wherein the surface of	
	the	e piston sole plate (71) contacting the	
	peı	ripheral surface of the roller (18) consists of	

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

- a ceramic material (see D1, column 1, lines 30-37).
- 2.1 The subject matter of claim 1 differs from D1 in that the contacting surface of the piston sole plate consists of one of three alternative materials, namely, hard metal, a cast carbide material or a cermet.

The subject matter of claim 1 is therefore novel (PCT Article 33(2)).

- 2.2 The problem addressed by the present invention may therefore be considered that of providing a more reliable radial plunger pump (see the application, page 1, paragraph 3).
- 2.3 The solutions indicated in 2.1 above are not known from the searched prior art. A combination of D1 with another prior art document would also be non-obvious to a person skilled in the art, since the prior art contains no suggestions that would induce a person skilled in the art to modify the radial plunger pump known from D1 so as to arrive at the subject matter of claim 1. Further, the three materials claimed in claim 1, assuming greater hardness in all cases, would lead to improved wear resistance. Claim 1 therefore involves an inventive step (PCT Article 33(3)).
- 2.4 Claims 2-7 are dependent on claim 1 and therefore likewise meet the PCT requirements for novelty and

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
	inventive step.
2.5	The invention is industrially applicable in the
	field of pumps (PCT Article 33(4).
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